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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/823,600	03/30/2001	David Chong Sook Lim	17732-3856000	6055

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EXAMINER

ANDUJAR, LEONARDO

ART UNIT	PAPER NUMBER
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2826

DATE MAILED: 04/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/823,600

Applicant(s)

SOOK LIM ET AL.

Examiner

Leonardo Andújar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18, 19, 21-23, 25-3 and 34-45 is/are pending in the application.
- 4a) Of the above claim(s) 25-31 and 38-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18, 19, 21-23, 34-37 and 45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/20/2004 has been entered.

Acknowledgment

2. The amendment filed on 02/20/2004 in response to the Office action mailed on 11/20/2003 has been entered. The present Office action is made with all the suggested amendments being fully considered. Accordingly, pending in this Office action are claims 18, 19, 21-23, 25-31 and 34-45.

Election/Restrictions

3. Claims 25-31 and 38-44 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention (method claims), there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 9.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 18, 19, 21, 23, 34-37 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuhn (US 5,793,101 previously cited).
6. Regarding claim 18, Kuhn (see figure 2 attached to the final rejection sent on 11/20/2003) shows a package having a substrate 20 for receiving a die down die 23 and/or a die up orientation 22. The die down die defines electrical contacts 1. The substrate comprises: a plurality of leads conductive traces (the wiring of the circuit 27) defining first contacts 1 which are arranged to accept connector wires making electrical connections from the electrical contacts of a single die down die 23. Also, Kuhn shows second contacts 2 which are arranged to correspond to a single die up die 22. The substrate can be placed into a package designed to accept a single die up die (i.e. printed circuit board). The electrical connection may be made to the substrate second contacts as if it were a single die up die (col. 1/lis. 14-27).
7. Regarding claim 19, Kuhn shows a single die down 23 mounted on the substrate and having wires 31a joining the electrical contacts of the die down die to the first contacts of the conductive traces. Also, Kuhn shows electrically conductive wires 31 joining the second contacts on the conductive traces to contacts 3 on a lead frame.
8. Regarding claim 21, Kuhn discloses that the single die down die 23 is attached to the substrate by a non-conductive means such as epoxy (col. 5/ll. 10).
9. Regarding claim 23, Kuhn discloses that the single die down die is an integrated circuit (col. 4/lis. 38-51).

10. Regarding claim 45 Kuhn (see figure 2 attached to the final rejection sent on 11/20/2003) shows a package for receiving a single die with contacts arranged in a die up orientation " a single die up die 20" comprising: a substrate 20 and a lead 21 with contacts 3. Kuhn shows connectors wires 31b joining the second contacts on the trace to the lead frame contacts.

11. Regarding claim 34, Kuhn discloses that the single die down die 23 is attached to the substrate by a non-conductive means such as epoxy (col. 5/ll. 10).

12. Regarding claim 36, Kuhn discloses that the single die down die is an integrated circuit (col. 4/lls. 38-51).

13. Regarding claim 37, Kuhn discloses that the single die down die includes components attached to the die down die (e.g. pads 25).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 22 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuhn (US 5,793,101 previously cited) in view of Harper (previously cited).

16. Regarding claims 22 and 35, Kuhn discloses most aspects of the instant invention including a substrate 27 comprising an insulating material (col. 4/lls. 27). Kuhn does not disclose which specific materials can be used as insulating material. Harper discloses that polyimides (organic and insulating) are extensively used in the

electronic industry because they have good heat resistance and good electrical properties at high temperatures (page 1.9). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the Kuhn's substrate of polyimide (organic and insulating) in order to provide an insulating material having good heat resistance and good electrical properties at high temperatures as taught by Harper.

Response to Arguments

17. Applicant's arguments filed 02/20/2004 have been fully considered but they are not persuasive.

18. Applicant argues that the currently amended claims are limited to a substrate mounting a single chip. Nevertheless, the claims as amended are not strictly limited to a substrate mounting only one chip. In this case, the claims are limited to a substrate mounting a single die down die and a single die up die. Note that Kuhn (e.g. fig. 2) show only one die down die 23 and one die up die 22. Therefore, Kuhn shows a substrate for mounting a single die down die and a single die up die. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). In any case, this limitation does not have support in specification as originally filed. The fact that the specification teaches that the substrate permits the connection of a die down chip in a die up configuration does not imply that the substrate is unable of receiving more than one chip as suggested by applicant. In other words, fact that a substrate is capable of receive one chip does not imply that it cannot be used for more

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than one chip. It is respectfully noted that nothing in the specification as originally filed suggest the substrate is exclusively for only one chip (emphasis added). Moreover, to use the substrate disclosed by Kuhn to mount a die down die or a die up die is considered to be an intended use of the substrate disclosed by the prior art. Note that intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In *re Casey*, 152 USPQ 235 (CCPA 1967); In *re Otto*, 136 USPQ 458, 459 (CCPA 1963). Furthermore, it has been held that omission of an element (i.e. one of the chips) and its function in a combination where the remaining elements perform the same function as before involves only routine skill in the art. In *re Karlson*, 136 USPQ 184. In this case, the exclusion of one chip does not affect the function of the substrate since the function of the substrate is to give support.

19. Regardless of the use disclosed by Kuhn (i.e. to mount two or more chips), Kuhn teaches the claimed subject matter because the substrate 27 is capable of accepting both types of die orientations as evidenced by figure 2. Note that the claim 1 claims a substrate in terms of an intended use. If the prior art structure is capable of performing the intended use, then it meets the claim (see comments above).

Conclusion

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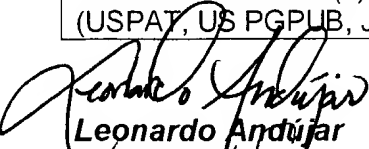
20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonardo Andújar whose telephone number is 571-272-1912. The examiner can normally be reached on Mon through Thu from 9:00 AM to 7:30 PM EST.

21. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

22. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass (es): 257/678, 693 and 697	04/04
Other Documentation:	
Electronic Database(s): East (USPAT, US PG PUB, JPO, EPO, Derwent, IBM TDB)	04/04


Leonardo Andújar

Patent Examiner Art Unit 2826

LA

4/15/04